DIMP IMPLEMENTATION

Delaware PSC Pipeline Safety Seminar

National Association of Pipeline Safety Representatives

&

US DOT PHMSA Office of Pipeline Safety

Thursday, December 13, 2018

Everyone Must Be Involved

- Everyone must be involved in safety and do their part to support an Integrity Management System
- Every significant incident results in pressure on Government to promulgate more Regulations
- In Failure Investigations, Regulators commonly find that Human Performance is the root cause, not training and resources
- Our world must move from a “checkbox” mentality to understanding the health of our pipeline systems by analyzing and understanding data and information and promptly acting to reduce risks

Addressing Risks to Improve Safety

- **§192.605(c) Abnormal operation. (4)** Periodically reviewing the response of operator personnel to determine the effectiveness of the procedures controlling abnormal operation and taking **corrective action where deficiencies are found**.
- **192.613 Continuing surveillance** (a) Each operator shall have a procedure for continuing surveillance of its facilities to determine and **take appropriate action** concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions. …
- **192.617 Investigation of failures** Each operator shall establish procedures for analyzing accidents and failures, including the selection of samples of the failed facility or equipment for laboratory examination, where appropriate, for the purpose of determining the causes of the failure and **minimizing the possibility of a recurrence**.
- **192.1007 What are the required elements of an integrity management plan? … (b) Identify threats & (d) Identify and implement measures to address risks.**

Safety Culture Improves Operations

- Safety Culture stresses doing the right thing regardless of competing interests or who is watching
- Integrity and Safety Management Systems provide mechanisms for Industry to fix their own problems before precursor events lead to incidents
- Safety Culture provides a platform from which to drive continuous improvement in the safe operation and integrity of a pipeline system

Safety Culture - API 1173

Safety Culture can be described as the shared values, actions, and behaviors that demonstrate a commitment to safety over competing goals and demands.

Critical elements of a strong safety culture:

1. Leadership is Clearly Committed to Safety
2. Open and Effective Communication Across the Organization
3. Employees Feel Personally Responsible for Safety
4. The Organization Practices Continuous Learning
5. There is a Safety Conscious Work Environment
6. Reporting Systems are Clearly Defined and Non-Punitive
7. Decisions Demonstrate that Safety is Prioritized Over Competing Demands
8. Mutual Trust between Employees and the Organization
9. The Organization is Fair and Consistent in Responses
10. Training and Resources are Available to Support Safety

Evidence of Safety Culture in Your Life

Positive Safety Culture

- An operator's contractor reported his foreman for gouging a plastic main with a digging bar during construction and covering it up.
  - This report was made to the Operator's "non-punitive" reporting system.
  - Operator dug up the main and discovered it was gouged over 10% . The damaged portion was cut out and replaced.
  - Reporting individual had only been in the gas business , for less than 6 months
  - Appropriate actions were taken regarding the foreman.

Prudent Proactive Oversight Actions

An operator inspector discovered a bad fusion with a new contractor crew.

- Rather than just making the crew redo that fusion, he pulled OQ cards until he could re-examine other work performed recently.
- After finding another bad fusion, the operator dug up 100% of this crew’s work and found numerous issues.
- This process uncovered that despite the crew being qualified, they were taking intentional short cuts – the crew had been on the job for a week.
- The quick and diligent response allowed for timely reaction by the operator.

Safety During Leak Response

- An operator responded to an odor call and found 18% gas in air readings near a building wall (Grade 1 Leak).
  - After the initial action, readings dropped to near zero.
  - Rather than downgrading the leak, the operator’s crew stripped the line back, foot by foot and soap tested each exposed foot of pipe until they found the pin hole leak which caused the initial gas migration.

Safety Culture in TIMP Above and Beyond

- A superintendent on a transmission replacement job, detailed each action ranging from which crew personnel are on each pipe segment, to each heat number on each pipe, to how and where each cut, weld, coating application were performed, etc. and incorporates all on his mapping of the project.
- When asked why he was capturing data that far exceeded operator requirements, he responded because that is what the intent of TIMP is…
- "… *that in 20 years, something might occur where they need to know the type and amount of coating, who did a weld, or discover that a specific heat number was bad and need to know where exactly it is on this 20 mile project*."

Planning of Work Safely

- A contractor working to install a new service line to a new home determined that the proposed route of a service line would conflict with numerous utilities.
  - Rather than place the service line as prescribed where it crossed multiple utilities and therein risk future damage to the line,
  - The crew foreman worked with engineering and the homebuilder to re-route the service where it would not cross any utility thereby reducing risks.

DIMP Inspection Results and Findings

High Level Observations

- DIMPs must Mature and be Continuously improved to mature to fit the operator’s unique operating environment - a learning experience
- DIMP Rule is a performance based regulation to be flexible and allow operators to implement their DIMP in the most efficient and effective manners to improve pipeline safety

Employee Retention and Training

- Vacancies created by an aging workforce (turn-over) have created voids in operating knowledge of pipeline systems, and trained personnel have not always been available for inspections.
- Retention of trained and qualified employees has been identified as a common issue requiring transition planning and training
- Documentation of pipeline system and OM&I procedures is important to retain knowledge

DIMP Implementation

- Treat DIMP as a tool to analyze needs and progress, not as a regulatory exercise or a book on the Shelf
- The Plan should culminate in a ranked/prioritized list of threats, risk reduction measures, and performance measures
- Operators are required to Know their Systems and the Environments in which they operate and constantly improve

Measures to Address Risks (Threats)

	Primary Threat Category	Threat Subcategory, as appropriate	Measure to Reduce Risk implemented	Performance Measure
1	Corrosion	External Corrosion on Copper Service Lines	Replace approximately 100 copper service lines each calendar year	Track number of leaks caused by external corrosion per 1000 copper service lines annually
2	Excavation Damage	Third Party Damage	Conduct pre-construction meetings or Monitor locate for life of ticket	Track frequency of failures per 1000 excavation tickets annually
3	Equipment Failure	Mechanical Fittings, Couplings or Caps/Seals	Repair or replace problem materials as found	Track frequency of failures by equipment type annually

Concerns

- Inconsistent Training of All personnel regarding DIMP requirements
- Lack of Awareness of DIMP by all personnel – not just at the headquarter or compliance level
- Data quality is a common concern, and an appropriate level of resource allocation is required;
    - Outdated Field data acquisition forms
    - Incomplete Forms with obvious errors
    - Data cleanup and scrubbing is often required

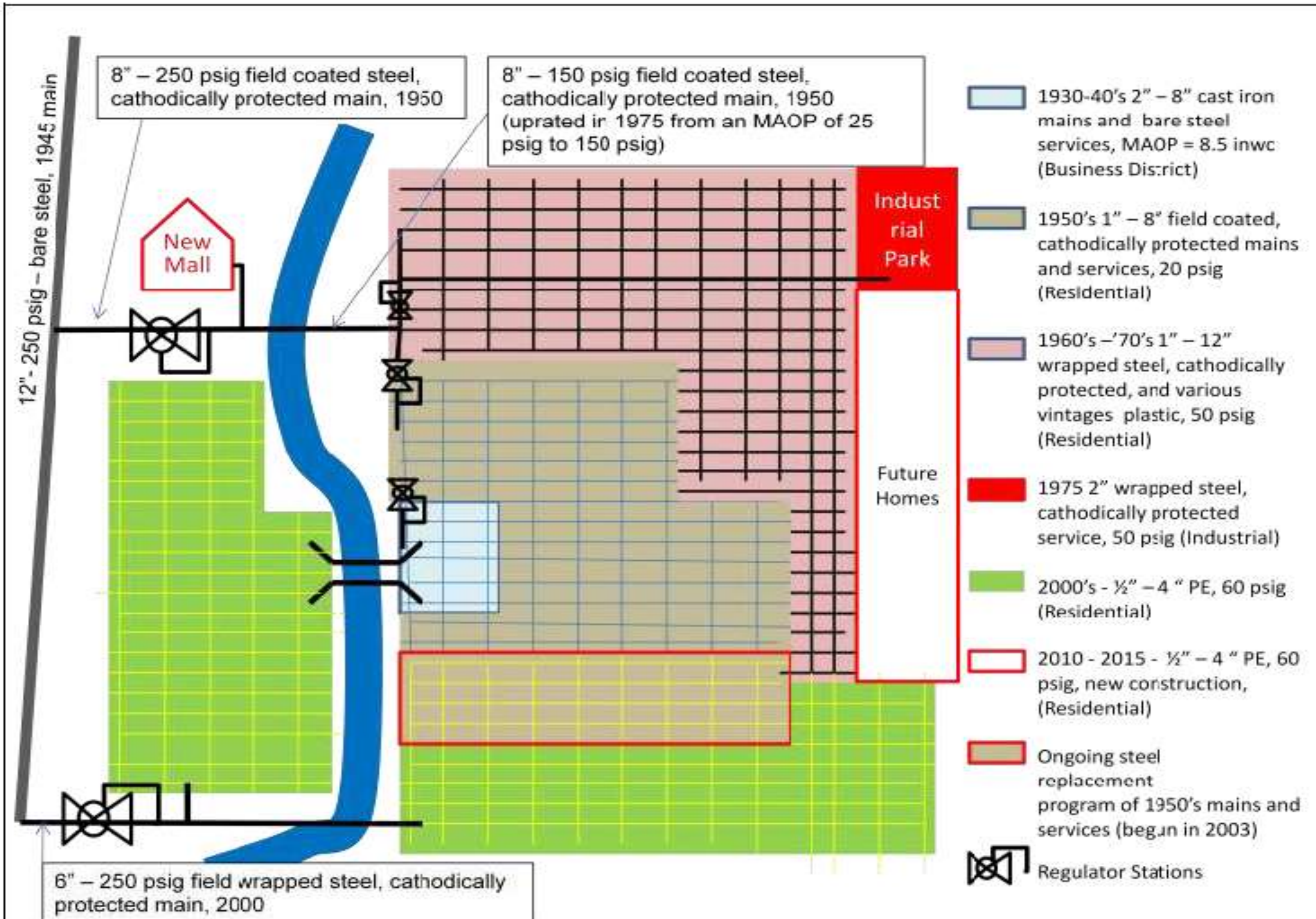
Potential Threats Often Not Considered

- Over pressurization events
- Regulator malfunction or freeze-up
- Cross-bores into sewer lines
- Materials, Equipment, Practices, etc. with performance issues
- Vehicular or Industrial activities
- Incorrect maintenance procedures or faulty components
- Mechanical fitting failures (Vintage Plastic and Steel)
- Operator error/quality of workmanship
- Age of system and equipment
- Electrical arcing onto the gas systems
- Other potential threats specific to the operator's unique operating environment

Handling Consequences in DIMP

- Subdividing DIMP into "Regions" can address Threats and Consequences by going into more detail in smaller areas
  - Class Location can group Consequences based on population densities and usages into "like" Regions
  - Construction "eras" can group Threat Categories (Materials and Practices) into "like" Regions
  - Evaluating specific Materials and Equipment allows Data to be evaluated for specific threats and performance monitored more discretely
- Needs to Fit Your Unique Operating Environment

TQ Mock System For DIMP 10/07/10



Change is Everywhere

- While there are some prescriptive requirements in DIMP, most requirements are performance-based designed on the concepts and tenets of safety management systems and do not stipulate specific integrity assessment or risk mitigation actions
- This design allows for operators to have flexibility in accounting for the significant differences in system design and local conditions affecting distribution pipelines

Your Unique Operating Environment

- There are many factors that affect the safe operation and integrity of your pipeline system
- These factors are **changing** over time– based on age or local changes or other factors?
    - Increases in leakage rates based on location or pipe material or construction era
    - Decreasing efficiency in corrosion protection systems
    - Changes in apparent causes of leaks and hazardous leaks
    - Data integrated from lessons learned from field personnel
    - Etc…

DIMP Regulation Requires Continuous Improvement

192.1007(a) Knowledge of Gas Distribution System

- Identify missing information, have a Plan for identification and collection of additional information, and Communicate this plan and list of missing information to Field Personnel to collect it
- Integrate learnings from § 192.613 Continuous Surveillance and § 192.617 Failure Investigation into DIMP

192.1007(b) Identify Threats to Integrity

- Leak rates by material, location, and service are important for identifying existing threats – Change?
- Operators must consider non-leak failures in analyzing risk. DIMP should address failures that do not result in a release (e.g., near miss) to identify potential threats.
- Integrate learnings from response to Abnormal Operation from §192.605(c)(4) into DIMP

Change & Continuous Improvement

192.1007(c) Evaluate and Rank Risks

- System subdivision for the evaluation and ranking of risks must be sufficient to appropriately analyze risk(s) present in the Operator's unique operating environment.
- Geographical segmentation may be appropriate when systems are separated by space or a specific, predominate threat exists (e.g., where flooding can be expected, earthquake prone area). However, different materials may be a predominate threat in a region, and segmentation may need to be refined to accommodate different failure rates.

192.1007(d) Measures to Address Risks

- The Plan must provide for a link between the specific risk (either a threat or consequence) and the measure to reduce risk that has been identified and implemented.
- The Plan must contain or reference an effective leak management plan unless all leaks are repaired when found.

Change & Continuous Improvement

192.1007(e) Performance Measurement

- Operators must develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program.
- Where is Change occurring? Am I doing the correct risk mitigation actions or do I need to do something different?

192.1007(f) Periodic Evaluation and Improvement

- A Plan must contain procedures for conducting periodic evaluations.
- Amend Plan as you change your processes to become better based on what you have learned
- Is your Performance Measurement adequate?

Improving Safety through Performance Measurement and Trending Analyses

“What gets measured, gets done.”

- To ensure Risk Mitigation Measures are Improving Safety, Performance must be Measured and Trended
- There are many websites that provide performance monitoring for Stakeholders on public websites at the National, Regional, and Operator level

PHMSA Data and Statistics Overview - www.phmsa.dot.gov/data-and-statistics/pipeline/data-and-statistics-overview

PHMSA National Pipeline Performance Measures - www.phmsa.dot.gov/data-and-statistics/pipeline/national-pipeline-performance-measures

PHMSA DIMP Website – www.primis.phmsa.dot.gov/dimp/perfmeasures.htm

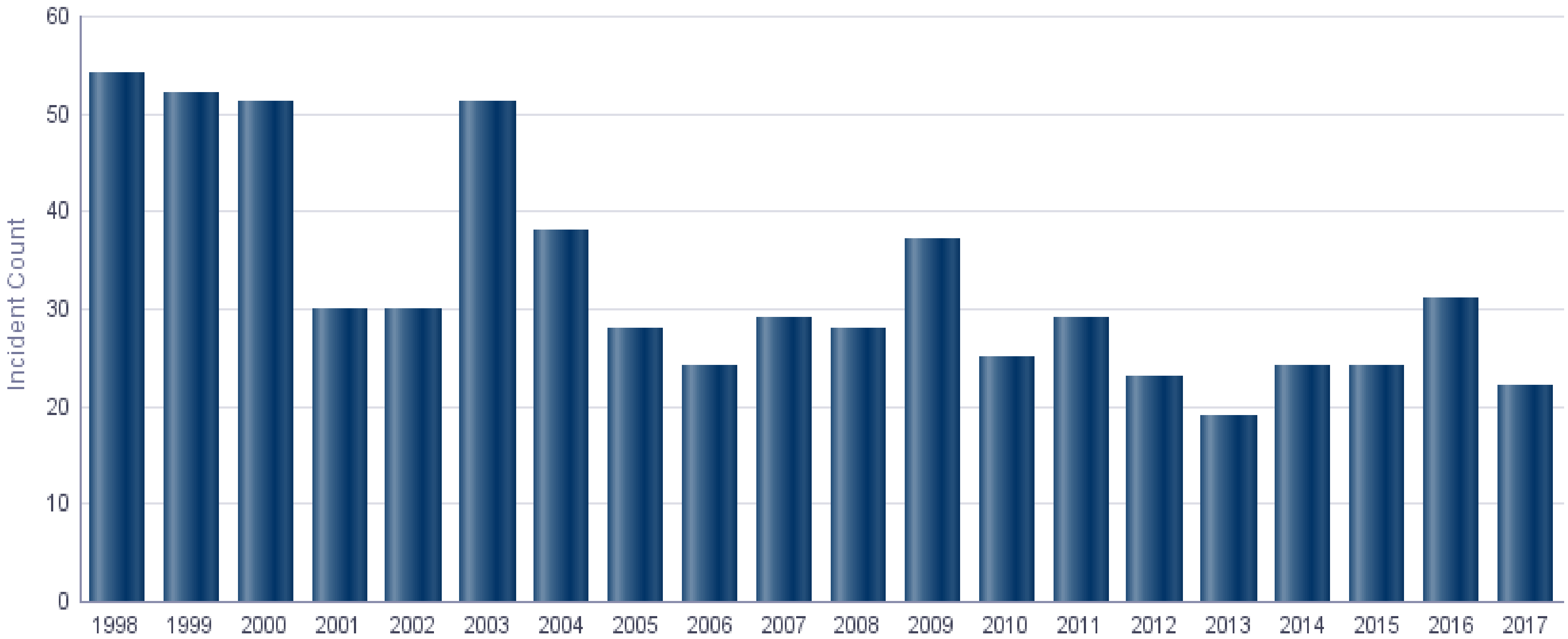
PHMSAState Pipeline Performance Metrics - www.phmsa.dot.gov/data-and-statistics/pipeline/state-pipeline-performance-metrics

Serious Incidents - Nationally

Serious Incident - an incident which causes:

- Fatality or injury requiring in-patient hospitalization

Gas Distribution – Flat trend in recent Years

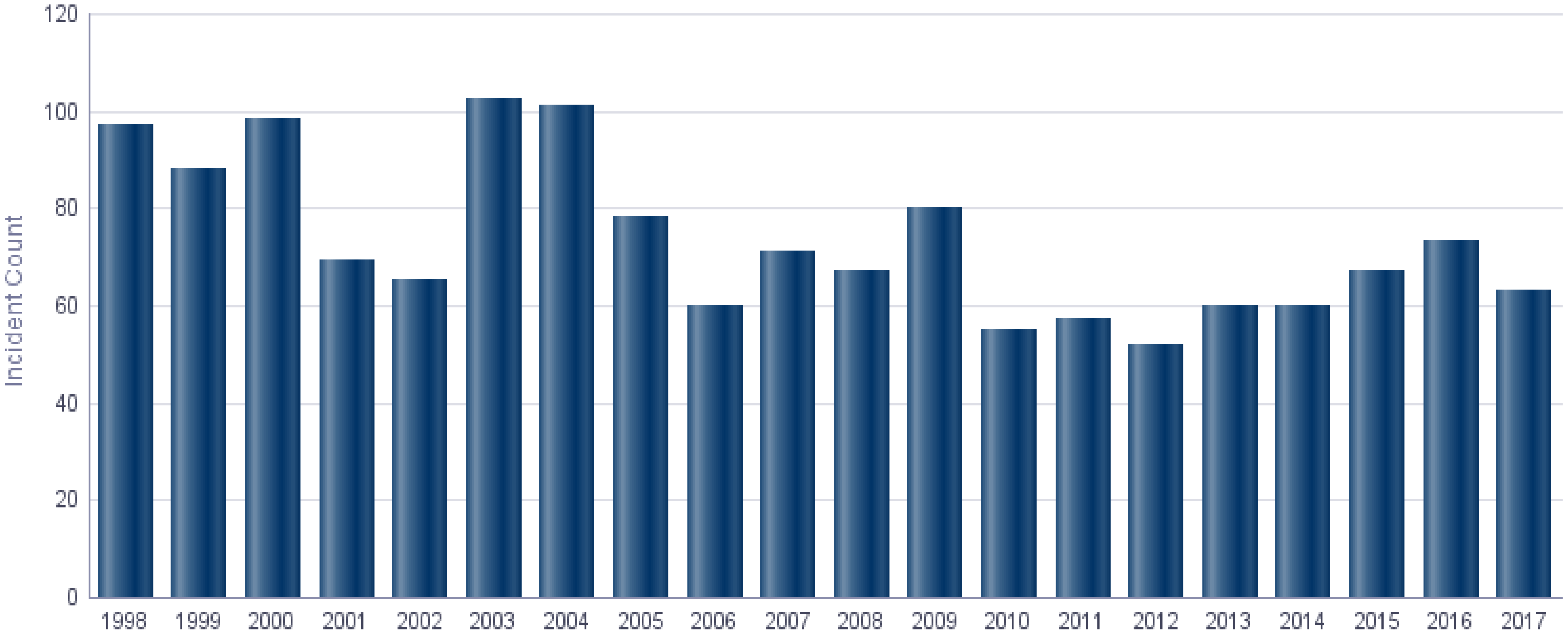


Significant Incidents - Nationally

Significant Incident - an incident which causes:

- Fatality or injury requiring in-patient hospitalization
- $50,000 or more in total costs, measured in 1984 dollars
- Highly volatile liquid releases of 5 barrels or more or other liquid releases of 50 barrels or more
- Liquid releases resulting in an unintentional fire or explosion

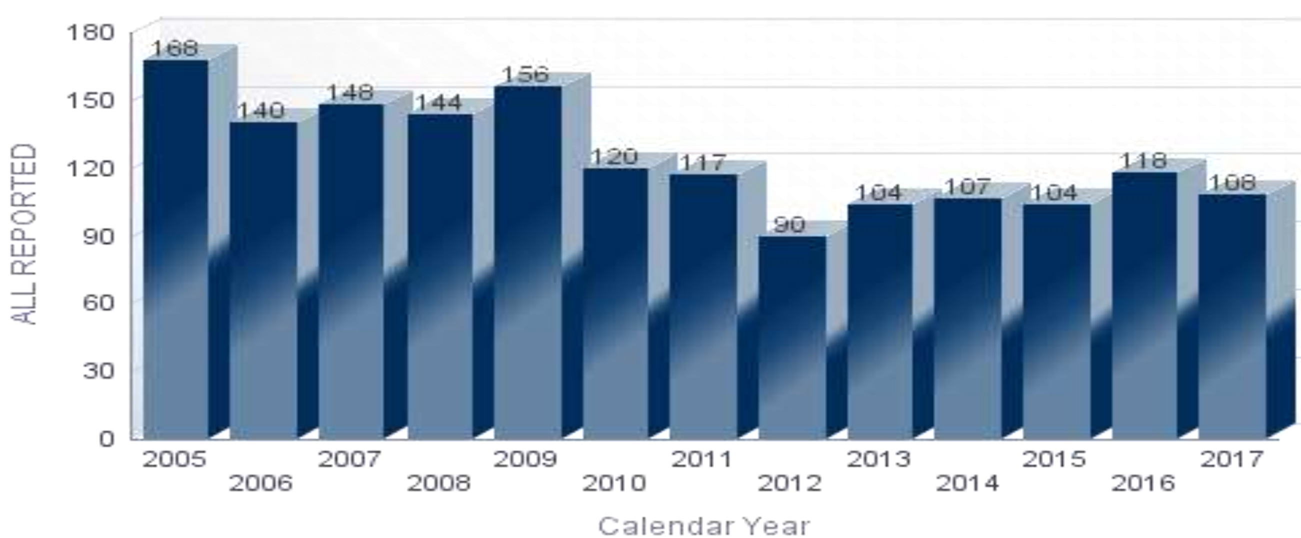
Gas Distribution – Upward Trend last 8 years since DIMP



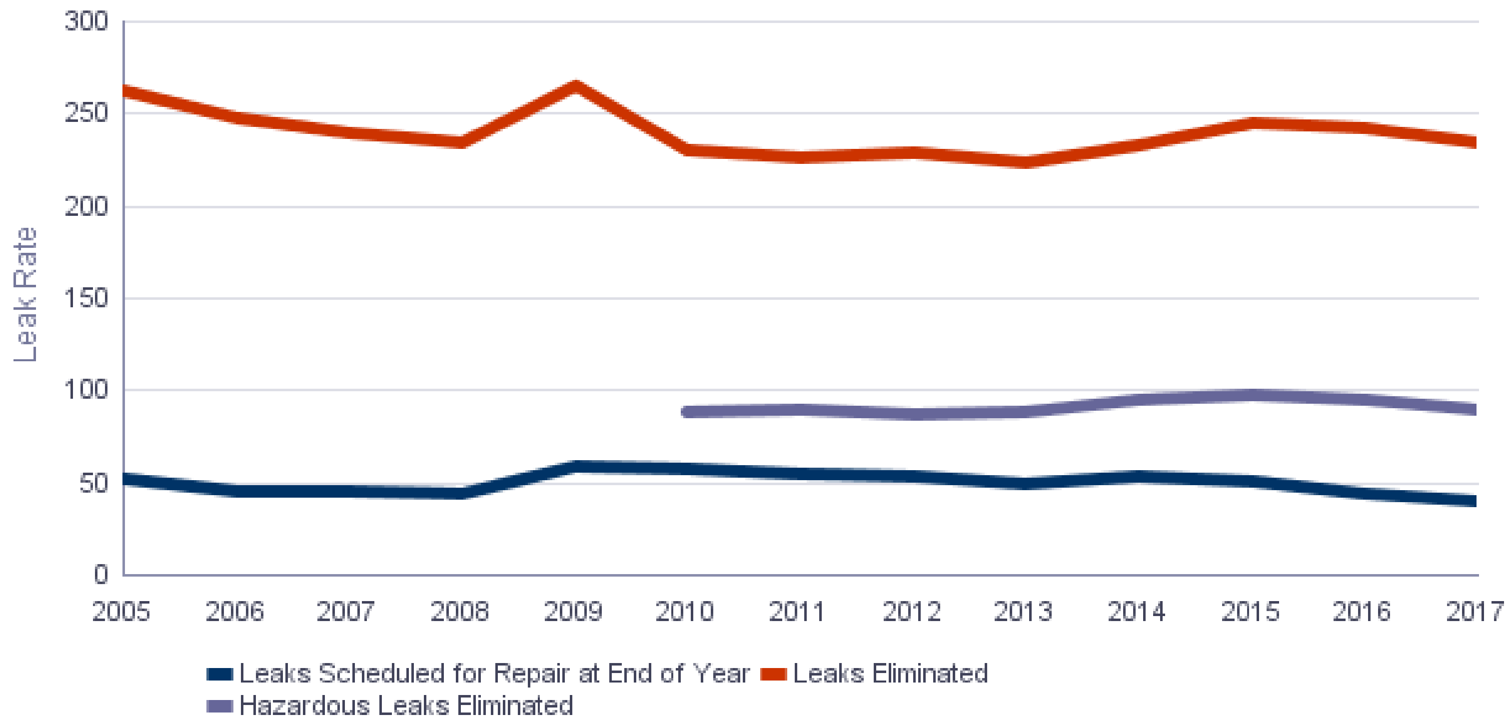
Trends in GD Incidents by Cause
- National Data -

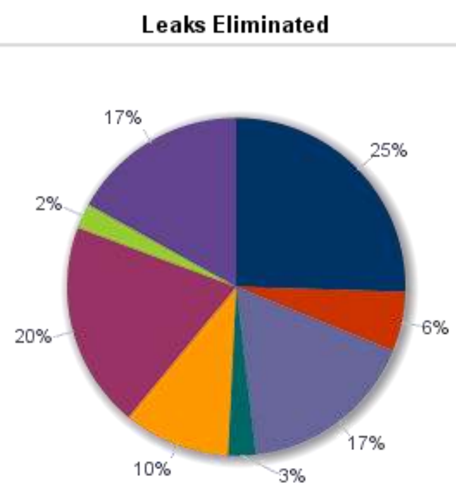
Geo Region: (All Column Values) Geo State: (All Column Values)

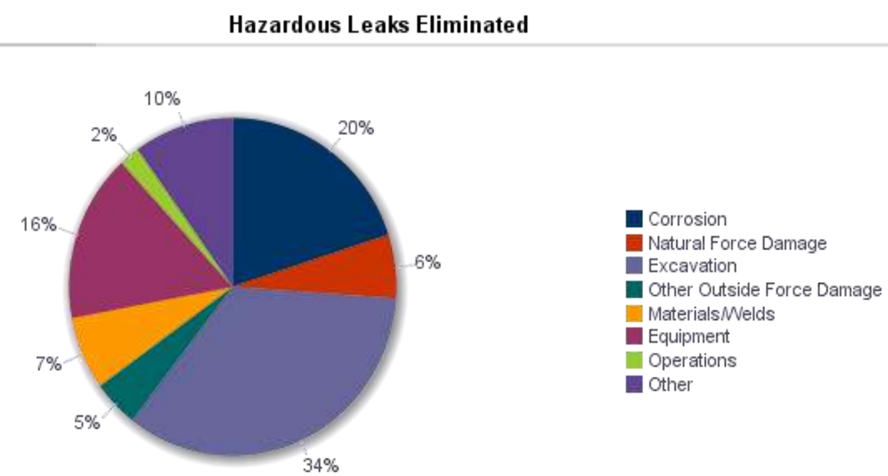
	ALL REPORTED													Total
Incident Cause Type	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
ALL OTHER CAUSES	15	23	22	16	21	15	14	7	9	12	12	14	13	193
CORROSION	2	3	1	5	2	5	4	3	1	2		1	1	30
EXCAVATION DAMAGE	67	49	58	35	43	24	30	18	35	31	37	43	31	501
INCORRECT OPERATION	7	4	1	6	5	9	9	7	4	8	3	8	8	79
MATERIAL/WELD/EQUIP FAILURE	11	7	13	9	12	8	13	11	16	12	8	14	17	151
NATURAL FORCE DAMAGE	15	11	12	11	13	9	12	5	5	8	14	6	6	127
OTHER OUTSIDE FORCE DAMAGE	51	43	41	62	60	50	35	39	34	34	30	32	32	543
Grand Total	168	140	148	144	156	120	117	90	104	107	104	118	108	1,624



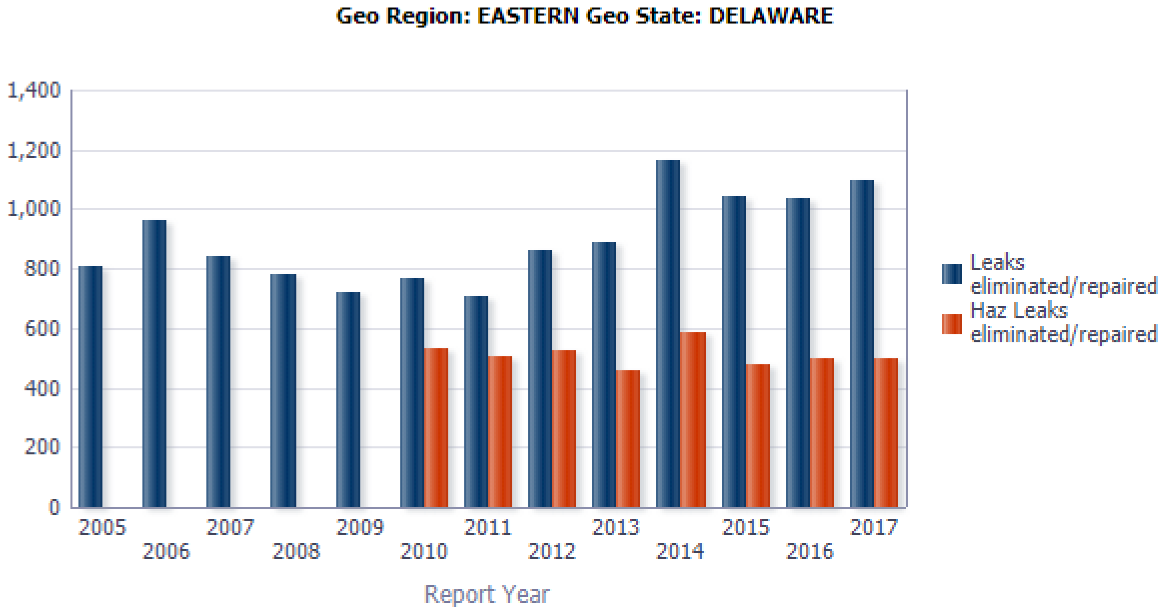
National Trends in Gas Distribution Leaks







Trends in Gas Distribution Leaks by Cause - Delaware Specific data -



Gas Distribution Hazardous Leaks by Cause
Time run: 10/24/2018 4:09:59 PM

Portal Data as of **10/23/2018 10:06:37 PM**

Geo Region: EASTERN Geo State: DELAWARE

Leak Cause	2010	2011	2012	2013	2014	2015	2016	2017
Corrosion	144	133	148	140	218	123	131	131
Natural Force	31	27	24	17	49	32	37	26
Equipment	0	3	2	5	6	16	0	0
Material or Weld	21	65	41	54	49	33	48	57
Excavation	253	208	258	185	202	214	218	239
Operations	3	0	1	0	0	1	0	0
Other Outside Force Damage	1	4	10	10	10	21	30	4
Other Cause	79	65	37	45	50	35	33	38

Trends in Gas Distribution Leaks by Cause - Delaware Specific data -

Gas Distribution Leaks by Cause
Time run: 10/25/2018 1:45:33 PM

SMART Data as of **10/24/2018 7:08:57 PM**
Portal Data as of **10/24/2018 10:13:11 PM**

Geo Region: EASTERN Geo State: DELAWARE

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Leak Cause													
Corrosion	282	320	251	233	270	247	237	253	241	360	281	240	272
Natural Force	37	32	44	36	33	48	44	41	36	66	72	64	44
Equipment	2	7	7	16	31	2	4	108	200	234	236	219	263
Material or Weld	100	79	47	107	57	46	97	100	114	128	130	193	194
Excavation	215	365	385	276	223	261	210	258	185	212	215	220	239
Operations	0	0	3	0	0	4	1	1	2	0	2	0	1
Other Outside Force Damage	1	1	1	2	2	3	4	11	12	15	21	30	5
Other Cause	168	152	101	111	101	156	110	87	95	142	84	67	75

Gas Distribution Leaks Scheduled for Repair at End of Year
Time run: 10/24/2018 4:09:59 PM

SMART Data as of **10/23/2018 6:50:50 PM**
Portal Date as of **10/23/2018 10:06:37 PM**

Geo Region:EASTERN Geo State: DELAWARE

Performance Measurement

- Gas Data Quality & Analysis Team posted Gas Distribution and Gas Transmission Performance Measures on the OPS website at www.phmsa.dot.gov/data-and-statistics/pipeline/national-pipeline-performance-measures
- Key Performance Indicators (KPIs) are identified and trended

Gas Distribution Performance Measures

- Serious Incident per Mile - trends & "by cause" pie chart
- Significant Incident per Mile - 3 trends
- Leaks per Mile - 3 trends & 2 cause pies
- Excavation Damage - 2 trends
- Cast and Wrought Iron - 2 trends
- Steel Miles (Bare/Unprotected) -3 trends
- Miles by Decade Installed - 6 trends

Trends in Gas Distribution Leaks Operator Level – Examples from Website

Gas Distribution Leaks – Operators with 10,000 miles or more
Time run: 10/3/2018 8:53:57 AM

Data Source: US DOT Pipeline and Hazardous Materials Safety Administration
Data as of: 10/02/2018

For multi-year rates, a rate is calculated for each year. The annual rates are summed and then averaged.

Operator ID	Operator Name	5 Year Average Hazardous Leaks Eliminated (leaks per 1,000 miles)	10 Year Average Leaks Eliminated (leaks per 1,000 miles)	5 Year Average Leaks Eliminated (leaks per 1,000 miles)	10 Year Average Leaks Scheduled for Repair (leaks per 1,000 miles)	2017 Miles
1640	BOSTON GAS CO	400.88	784.84	728.71	18.09	10,860.76
1088	BALTIMORE GAS AND ELECTRIC COMPANY	211.70	527.50	601.39	72.16	13,653.28
2364	DUKE ENERGY OHIO	197.93	473.84	409.00	79.42	11,533.27
21349	VIRGINIA NATURAL GAS	187.12	414.70	367.92	41.02	11,023.69
18532	TEXAS GAS SERVICE COMPANY, A DIVISION OF ONE GAS, INC.	168.22	351.56	365.54	113.03	15,011.97
4499	CENTERPOINT ENERGY RESOURCES CORPORATION	157.78	457.62	424.39	87.49	67,245.81
180	SPIRE ALABAMA INC.	147.75	340.48	269.83	67.84	23,883.71
12350	CENTERPOINT ENERGY RESOURCES CORP., DBA CENTERPOINT ENERGY MINNESOTA GAS	145.17	297.84	274.80	16.64	25,745.82
22182	WASHINGTON GAS LIGHT CO	143.69	195.67	227.53	48.04	26,999.96
4060	DOMINION ENERGY OHIO	140.41	451.06	327.30	106.12	31,053.88

Gas Distribution Leaks – Operators with less than 10,000 miles
Time run: 10/3/2018 8:53:57 AM

Data Source: US DOT Pipeline and Hazardous Materials Safety Administration
Data as of: 10/02/2018

For multi-year rates, a rate is calculated for each year. The annual rates are summed and then averaged.

Operator ID	Operator Name	5 Year Average Hazardous Leaks Eliminated (leaks per 1,000 miles)	10 Year Average Leaks Eliminated (leaks per 1,000 miles)	5 Year Average Leaks Eliminated (leaks per 1,000 miles)	10 Year Average Leaks Scheduled for Repair (leaks per 1,000 miles)	2017 Miles
31964	KAMPS PROPANE	1,262.98	6,852.97	2,001.30	5,819.41	7.71
13131	CONOCOPHILLIPS (E&P - L-48)	766.28	0.00	0.00	0.00	0.00
12816	MOSS POINT MUNICIPAL GAS SYSTEM, CITY OF	702.84	1,795.54	1,764.18	218.25	141.14
2704	CONSOLIDATED EDISON CO OF NEW YORK	699.03	1,308.40	1,496.52	2.97	7,608.93
5200	FITCHBURG GAS & ELECTRIC LIGHT CO	601.31	1,151.77	1,495.94	9.36	382.07
32621	CITY OF MARFA	500.26	1,225.68	1,971.77	28.81	14.10
15469	PHILADELPHIA GAS WORKS	449.76	1,051.24	1,077.73	4.65	5,934.95
4350	ELIZABETHTOWN GAS CO	449.38	533.94	648.11	161.68	5,450.98
1800	KEYSPAN ENERGY DELIVERY - NY CITY	383.53	408.27	489.17	2.82	8,989.39
1134	BARROW UTILITIES & ELECTRIC CORP	379.76	265.26	379.76	0.00	41.99

Gas Transmission Performance Measures

- Serious Incident per Mile - trend & "by cause" pie charts
- Onshore Significant Incident per Mile - 3 trends, also HCA and non-HCA trends & "by cause"
- HCA Immediate Repair per Mile - trend
- HCA Leaks & ILI Detectability - 2 trends & "by cause" pie charts
- Steel Miles (Bare and Unprotected) - 2 trends
- Miles by Decade Installed - 5 trends
- Onshore Pipeline Significant Incident Rates per Decade - rate chart and "by cause" pie charts

"What gets measured, gets done."

Reactive –> Proactive -> Predictive

Management Systems Improve Safety

Integrity Management Systems Performance Measurement

- Guidance is available on methods to develop and use metrics that provide for meaningful insights into reducing risks of specific threats and system wide risks
- ADB 2014-05 - Guidance for Meaningful Metrics
  - ADB–2012-10 Using Meaningful Metrics in Conducting Integrity Management Program Evaluations
- ADB 2014-02 - Lessons Learned from the Marshall, Michigan, Release

ADB – 2012-10

- Remind operators of their responsibilities, under Federal IM regulations, to perform evaluations of their IM programs using meaningful performance metrics.
- A critical program element of an operator’s integrity management program is the systematic, rigorous evaluation of the program’s effectiveness using clear and meaningful metrics.
- When executed diligently, this self-evaluation process will lead to more robust and effective integrity management programs and improve overall safety performance.
- This process is critical to achieving a mature IM program and a culture of continuous improvement and learning.

ADB – 2012-10

- Metrics that measures and provide insights into how well an operator's processes associated with the various IM program elements are performing.
- Specific threats that include both leading and lagging indicators for the important integrity threats on an operator's systems, including:
  - Activity Measures that monitor the surveillance and preventive activities that are in place to control risk
  - Deterioration Measures that monitor operational and maintenance trends to indicate if the program is successful or weakening despite the risk control activities in place
  - Failure Measures that reflect whether the program is effective in achieving the objective of improving integrity.

ADB – 2014-05

- PHMSA developed guidance on the elements and characteristics of a mature program evaluation process that uses meaningful metrics
- Major topic areas addressed in the guidance document include:
  - Establishing Safety Performance Goals
  - Identifying Required Metrics
  - Selecting Additional Meaningful Metrics
  - Data Collection and Metric Monitoring
  - Program Evaluation Using Metrics

ADB – 2014-05 Guidance

- Tables 1 & 2 are lists of metrics required by Part 192 and ASME B31.8S-2004 **TO BE USED!**

Table 2 - Other Required Metrics for Gas Transmission and Distribution Systems

Required by §192.945 and ASME B31.8S-2004, Table 9 for Gas Transmission Pipelines:

Threat	Performance Metrics for Prescriptive Programs
External corrosion	Number of hydrostatic test failures caused by external corrosion
	Number of repair actions taken due to in-line inspection results
	Number of repair actions taken due to direct integrity assessment results
	Number of external corrosion leaks
Internal corrosion	Number of hydrostatic test failures caused by internal corrosion
	Number of repair actions taken due to in-line inspection results
	Number of repair actions taken due to direct integrity assessment results
	Number of internal corrosion leaks

ADB – 2014-05 Guidance

Table 3 - IM Programmatic Performance Metrics

Table 3 - IM Programmatic Performance Metrics

	Leading --Indicators--*Logging*		
Program Element	**Selected IM Process, Operational or Activity Metrics**	**Operational Deterioration Indicators**	**Failure or Direct Integrity Metrics**
1. Identification of pipeline segments that could impact HCAs	• Frequency of updates to segment identification analysis • Frequency and nature of reviews conducted to identify new HCAs • Frequency of field district surveys or ROW inspections identifying new HCAs – or segments that could affect HCAs • Frequency and nature of review of procedures and assumptions made in identifying segments that could affect HCAs • Frequency of updates to aerial photography used for HCA segment analysis • Frequency of contacts with public safety officials and others having local knowledge for information on potential "identified sites" or could affect segments	• No. of newly acquired or newly identified assets not incorporated within the IMP within the required timeframe • No. of previously mis-identified HCAs identified as HCAs in updates to the segment identification analysis • No. of PIR calculations using an inappropriate formula for product transported (Gas Trans) • No. of new HCAs or could affect segments identified due to changing conditions (pipeline modifications, new public construction, change in public use of existing buildings, etc.) • No. of abnormal weather conditions (e.g., stream flow rate) that exceed assumptions used in HCA or could affect segment identification	• No. of releases which reached an HCA from pipe that was not determined to be a "could affect" segment (Haz Liq) • No. of releases with adverse impacts beyond the PIR (Gas Trans) • No. of releases which had different impacts to HCAs than determined by the "could affect" analysis • No. of releases which reached different HCAs than determined by the "could affect" analysis • No. of releases that exceeded the highest estimated volume that could be released in a segment (Haz Liq)

ADB – 2014-05 Guidance

Table 4 - System and Threat-Specific Performance Measurement

Table 4 - System and Threat-Specific Performance Measurement

	Leading ------------------------------Indicators------------------------------*Lagging*		
Failure Mechanism	**Selected Process or Operational Activities for Threat Prevention or Management**	**Deterioration Indicators**	**Failure or Direct Integrity Metrics**
Mechanical Damage			
First-party (operator) and second-party (contractor) damage	• Operator procedures for excavation on or near its own pipeline • Contractor procedures for excavation on or near the pipeline • Use of current system / facility maps	• No. of improper locates • No. of excavations outside locate area • No. of incidents / accidents where procedures were not followed or where appropriate care was not exhibited • No. of damages not reported • No. of enforcement actions taken by enforcement authority • Increase in frequency of damage	• Releases due to first or second party damage

Assessing Maturity

Current Regulatory Topics for Distribution Operators

NTSB Recommendations regarding PermaLock Mechanical Tapping Tees

- Safety Recommendation P-18-1
  - Work with state pipeline regulators to incorporate into their inspection programs, a review to ensure that gas distribution pipeline operators are using best practices recommended by the manufacturer in their distribution integrity management programs, \including using the specified tools and methods, to correctly install PermaLock mechanical tapping tee assemblies.
- Safety Recommendation P-18-2
  - Reference the use of external sources of information for threat identification in your frequently asked questions for preparation of distribution integrity management programs.

Current NTSB Investigations of Incidents in Gas Distribution Systems

- Minneapolis, Minnesota – August 2, 2017 - awaiting report
  https://www.ntsb.gov/investigations/AccidentReports/Pages/DCA17MP007-prelim-report.aspx
- Dallas, Texas – February 23, 2018 - awaiting report
  https://www.ntsb.gov/investigations/AccidentReports/Pages/PLD18FR002-preliminary.aspx
- Safety Recommendations on PermaLock Mechanical Tapping Tees issued June 18, 2018 - Millersville, Pennsylvania – July 2, 2017 - awaiting report
  https://www.ntsb.gov/investigations/AccidentReports/Pages/pipeline.aspx
- Response to Event in Lawrence, MA – September 13, 2017
  https://www.ntsb.gov/investigations/AccidentReports/Pages/PLD18MR003-preliminary-report.aspx - awaiting report

Lessons Learned Programs

- NTSB has asked - How did this happen and Why did the DIMP not identify the “threat” as an issue?
- Similar to what Congress asked in forming the VIS Committee – Why do we have so many failures following in-line inspections?
- VIS Committee Learning - Implementing lessons learned programs support development of a safety culture
    - Corrective Action Programs & Near Miss Reporting
    - FAA – Aviation Safety Alert Programs
    - FRA - Confidential Close Call Reporting
- Quantitative Data Programs take longer to implement

DIMP Enforcement Guidance

- DIMP Enforcement Guidance is posted and publicly available on PHMSA's website with the other Enforcement Guidance documents at http://www.phmsa.dot.gov/foia/e-reading-room
- This posting allows Operators to understand Regulators' expectations with regards to the DIMP Regulation and supports their implementation of their programs
- Guidance Documents include materials on References, Advisory Bulletins, Guidance, Examples of a Probable Violation or Inadequate Procedures, and Examples of Evidence

Enforcement Guidance Example for §192.1005

Enforcement Guidance	Distribution Integrity Management Part 192
Revision Date	12/7/2015
Code Section	§192.1005
Section Title	What must a gas distribution operator (other than a master meter or small LPG operator) do to implement this subpart?
Existing Code Language	No later than August 2, 2011 a gas distribution operator must develop and implement an integrity management program that includes a written integrity management plan as specified in §192.1007.
Origin of Code	192-113, 74 FR 63906, Dec. 4, 2009
Last Amendment	
Interpretation Summaries	
Advisory Bulletin/Alert Notice Summaries	<u>**Advisory Bulletin ADB-12-06 - Issued May 7, 2012**</u> PHMSA is issuing an Advisory Bulletin to remind operators of gas and hazardous liquid pipeline facilities to verify their records relating to operating specifications for maximum allowable operating pressure (MAOP) required by 49 CFR 192.517 and
Other Reference Material & Source	Addressed in DIMP Final Rule preamble in Federal Register / Vol. 74, No. 232 / Friday, December 4, 2009 / Rules and Regulations at: (Ctrl) mment Topic 4: Implementation time. Page 63909 • Comment Topic 11: Required documentation. Page 63915 [Distribution Integrity Management FAQs]() • **C.3.1** If an operator has both natural gas and LPG systems, must it have two separate DIMP plans or may it have a single plan? • **C.3.2** Must an operator have one DIMP plan covering all of its systems or could it have separate plans for different systems or service areas? • **C.3.3** Will companies operating in several states need to develop individual DIMP plans for each state? • **C.3.4** What is the relationship between an operations & maintenance manual and a DIMP plan? • **C.3.6** How does the new DIMP rule impact operators of gas piping systems on military bases, Federal Government, or Indian Tribal Government land?

Enforcement Guidance Example *continued*

Guidance Information	1. From 192.1001: *Integrity Management Plan* or *IM Plan* "means a written explanation of the mechanisms or procedures the operator will use to implement its integrity management program and to ensure compliance with this subpart." An operator must have a written distribution integrity management plan (DIMP) that contains or references procedures for developing and implementing each required element in §192.1007. 2. The procedures must have adequate detail to clearly describe the manner in which each requirement will be met. 3. The procedure must be documented so an inspector can make a reasonable determination as to the accuracy and thoroughness of the procedure. The procedures need to provide a description of who, what, when, where, and how the operator will perform the elements. The DIMP can be concise, but still must be sufficient for operator personnel to understand and implement the program on a consistent basis. Operators must follow their procedures. 4. The DIMP and any individual procedures' documents should include management approvals, origin date, and the effective date of the last revision. 5. From §192.1007, *Integrity Management Program or IM Program* "means an overall approach by an operator to ensure the integrity of its gas distribution system." The operator's integrity management program must include the appropriate set o as required in 19 6. An operator's D specific equipm referenced versu 7. The structure o comprehensive documents. The computer based required activitie must provide a failure.

Examples of a Probable Violation or Inadequate Procedures	1. The operator does not have a DIMP written and implemented by August 2, 2011. 2. The DIMP does not contain the necessary procedures to demonstrate that the DIMP was written and is being implemented. 3. A new system was put into operation and service without a written DIMP. 4. An operator who acquired an existing system and did not continue operations under the existing DIMP or did not incorporate the acquired assets into its DIMP. *Depending on the circumstances, some of the examples listed in this section may be inadequate plans and procedures, and not probable violations. Thus, the enforcement tool to address these issues would be a Notice of Amendment and not a Notice of Probable Violation or a Warning Letter. Section 3 of the Enforcement Procedures provides guidance on selecting the appropriate enforcement action.*
Examples of Evidence	1. Copies of the applicable pages of the DIMP showing that the operator has not clearly stated that the DIMP was written and implemented by August 2, 2011. 2. Documented oral and/or written statements from operator personnel.
Other Special Notations	

PHMSA Accident Investigation Division (AID)

- Screens & Evaluates all NRC reports of incidents/accidents
- Conducts Accident Investigations
- Conducts Root Cause Determinations
- Captures and actively shares lessons learned safety finding with internal and external stakeholders.
- Conducts education and outreach to help advance pipeline safety
- Evaluates and identify emerging safety trends

Questions and Comments?

Thank you for
your participation in
Pipeline safety!